

PROJECT NUMBER: 0105  
PROJECT TITLE: PHYSICAL CHEMISTRY OF SMOKE AND FILTRATION  
PERIOD COVERED: November 1 - 30, 1973  
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PROJECT LEADER: H. A. Hartung

#### Sorption in Filters

This month has been devoted largely to organization and reduction of data, literature studies and planning. Experiments were completed on the adsorption of alkanes and alkenes on cellulose acetate over the temperature range of 31 to 85°C. There are indications of unexpected physical transitions or changes as the CA is heated up. This is a complication that interferes with plans to measure heats of adsorption and we have done some detailed work in an attempt to elucidate both factors.

#### Baseline Studies

The study of Marlboro characteristics as a function of moisture is proceeding smoothly. The cigarettes were equilibrated for over a month in at eleven different target moisture contents. Oven volatiles (OV) have come in very close to the target values. Static burn times were found to be a linear function of the OV.

#### Isolation and Study of Flavor Constituents

Work during this month was devoted mostly to completing the large scale tobacco sparging unit and conducting experiments with the "mini-sparging" apparatus coupled with the Fourier transform infra-red instrument. The latter experiments were aimed at determining the rates of evolution of various substances from tobacco as it is heated in a stream of inert gas. The experiments were quite successful and much preliminary data was obtained (1).

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#### References:

(1) Osborne, Notebook 6143; pp. 41-42.

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